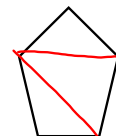


Chapter 8 Quadrilaterals

8-1 Find Angle Measures in Polygons

diagonal--segment that connects nonconsecutive vertices

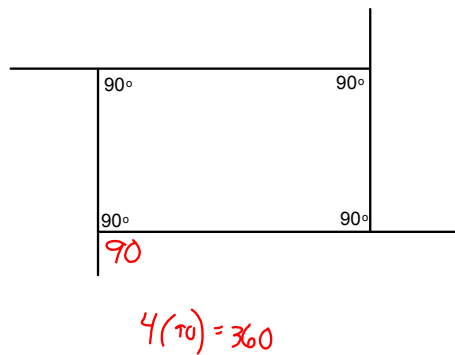
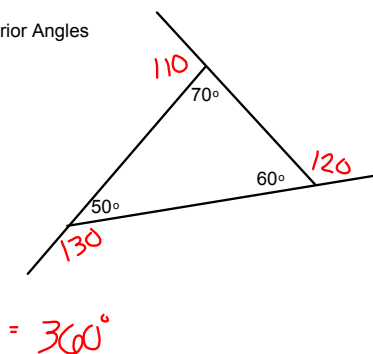


sides	3	4	5	6	n
# of Δ s	1	2	3	4	$(n-2)$
degrees	180	360	540	720°	$(n-2)180$

Theorem 8.1 Polygon Interior Angles Theorem
In a convex polygon with n sides, the sum of the interior angles is $(n-2)180$.

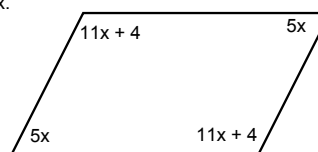
- Corollary to Theorem 8.1--Interior Angles of a Quadrilateral--the sum of the measures of the interior angles of a quadrilateral is 360° .

Exterior Angles



Theorem 8.2 Polygon Exterior Angles Theorem--
 In a convex polygon, the sum of the measures of the exterior angles, one at each vertex, is 360° .

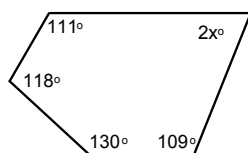
Solve for x.



$$2(5x) + 2(11x + 4) = 360 \quad (4-2)180$$

$$X = 71$$

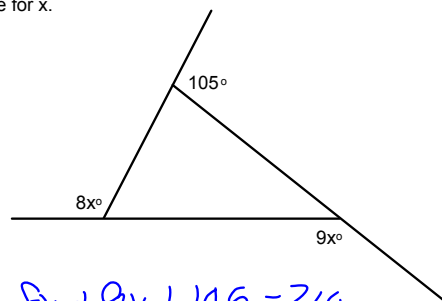
Solve for x.



$$(5-2)180$$

$$2x + = 540$$

Solve for x.



$$8x + 9x + 105 = 360$$

$$x = 15$$

Regular Polygon--Both equilateral and equiangular

n	6
interior angle sum $(n-2)180$	720°
exterior angle sum	360°
<u>Regular</u>	
each interior angle	$\frac{720}{6} = 120^\circ$
each exterior angle	$\frac{360}{6} = 60^\circ$

n	10
interior angle sum	1440°
exterior angle sum	360°
<u>Regular</u>	
each interior angle	144°
each exterior angle	36°

n	15	$\frac{360}{24} = 15$
interior angle sum	2340°	13×180
exterior angle sum	360	
<u>Regular</u>		
each interior angle	156°	
each exterior angle	* 24°	

n	30
interior angle sum	5040°
exterior angle sum	360
<u>Regular</u>	
each interior angle	168°
each exterior angle	12°

HW
p510-511
#s 3-5, 7-9, 12-15, 19-21, 26